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THE URINE IN DISEASE.

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Healthy Urine has an Average Specific Gravity of 1020*, and an Acid Reaction† About 45 oz. are daily excreted.‡ Is of a transparent amber tint.§

ABNORMAL INGREDIENTS.	SPECIFIC GRAVITY.	REACTION (WITH LITMUS).	QUANTITY.	CHARACTERS.	TESTS (QUALITATIVE.)				REMARKS.	THERAPEUTICAL NOTES.
					Heat and Nitric Acid.	Bichloride of Mercury,	Sulphuric Acid	Picric Acid.		
1 **ALBUMEN.**	1015 (and lower).	Alkaline (as a rule).	Diminished.	Smoky, brownish, or blood-red hue. Often odorless.	If albumen be excessive, Heat alone coagulates it. If in small quantity, Nitric Acid is required. Excess of Nitric Acid alone coagulates it.	in solution, coagulates it. —— A small piece of Glacial Acetic Acid dropped into Albuminous Urine, will produce a cloudiness. This test is delicate and reliable.	causes a deposit of Carbon (black) in warm Albuminous Urine.	A saturated solution causes a precipitate in a thin layer, when carefully added to the Urine.	*Persistent* presence indicates structural Disease of the Kidney: in Bright's Disease, casts are also found. *Temporarily* present in urine containing Pus or Blood; as in inflammatory diseases of the urinary mucous membrane; also in Intermittents, Rheumatic Fever, Pneumonia, Scarlatina, Cholera, etc. Chlorate of Potash, Carbolic Acid and Lead, taken internally, give the same reaction as Albumen. Phosphorus, Cantharides and Turpentine produce Blood.	In the various forms of Albuminuria, the following drugs are used: Tincture of Perchloride of Iron, Gallic Acid, Ergot of Rye, Senega, Nitro Glycerine, etc.; also Turkish and Vapour Baths. Gallic and Tannic Acids reduce the amount of Albumen.
2 **SUGAR.**	1030 (and higher).	Acid.	Increased.	Pale and frothy, with Cider-like Odor. Attracts flies.	A deep brown color on boiling with an equal quantity of Liquor Potassæ. (Moore's Test.)	Fermentation, on addition of yeast, after standing, at a raised temperature.	A Solution of Sulphate of Copper and Liquor Potassæ produces a blue tint, which becomes reddish or orange on the application of Heat. (Trommer's Test.)	Deep green tint on boiling with an alkaline solution of Bichromate of Potash. —— In extreme cases the odor of burnt sugar is evolved when the Urine is heated over a spirit-lamp on a spatula.	*Always* present in Diabetes. Often associated with Cataract. *Temporarily* present under the administration of Ether, Chloroform and Nitrite of Amyl. The Urine of patients taking Salicylic Acid gives the same reaction as Sugar.	Dietetics are of first importance. Dilute Phosphoric and Gallic Acids, Tincture of Perchloride of Iron, Permanganate of Potash, Jaborandi, etc., have been variously used. Arsenic and its Bromide, Codeia (in gr. ½ doses), Bromide of Potasium, Salicylate of Soda, Cod Liver Oil, Opium (in large doses), and Sulphide of Calcium are useful in Diabetes Mellitus. Liquid Extract of Ergot, Valerian, and Opium are employed in Diabetes Insipidus. Carlsbad and Vichy Waters are also useful.
3 **BILE.**	Slightly increased.	Alkaline.	Normal.	Dark greenish color. Bitter taste.	Nitric Acid produces a brownish tint.	A purple hue, on addition of Sulphuric Acid, and a little sugar. (Pettenkoffer's Test.)	Hydrochloric Acid causes a greenish tint.	After shaking up the suspected Urine with the white of an egg, and adding a little nitric acid a greenish coagulum is produced.	Present in Hepatic Derangements. In Jaundice, the Urine imparts a yellow stain to the linen.	Chloride of Ammonium, Phosphate of Soda, (5 1 doses), Sulphate of Potash, and Taraxacum, are recommended in Jaundice. Dilute Mineral Acids, Hydrargyrum cum Creta, Bromide of Potassium, Podophyllin, etc., are used in Hepatic Obstructions.
4 **EXCESS OF PHOSPHATES.**	1020 (and lower).	Alkaline, or neutral.	Increased.	Cloudy, or Pale yellow, with Fetid Odor.	Earthy Phosphates (Lime, Magnesia) are precipitated by Aqua Ammoniæ.	Alkaline Phosphates (Soda, Ammonia) are *not* precipitated by Aqua Ammoniæ.	Nitric and Hydrochloric Acids dissolve earthy and alkaline Phosphates.	Heat precipitates earthy Phosphates, but they are instantly dissolved by Nitric Acid.	Mostly derived from the food. Excess indicates disintegration of tissues, and occurs in Febrile, Inflammatory and Dyspeptic conditions, organic Urinary diseases, and in diseases of the *Central* Nervous system.	Benzoate of Ammonia and Dilute Phosphoric Acid are advisable in excess of Phosphates from ordinary causes. In Rickets, Phosphates of Lime and Iron, and Cod Liver Oil are best.
5 **EXCESS OF UREA.**	1030 (and higher).	Acid (usually).	Normal.	High color, with strong Urinous Odor.	By partly evaporating the urine, and adding an equal quantity of strong Nitric Acid, crystals of Nitrate of Urea are produced.	A concentrated solution of Oxalic Acid will produce crystals of Oxalate of Urea, after evaporation.			Excessive in Acute Inflammatory Fevers. Deficient in organic diseases of the Kidney, Diabetes, Anæmia and Hysterical Conditions. Urea and Uric Acid are products of destruction of Tissues. These are the forms in which Nitrogen is eliminated from the system.	Alcohol, Cinchona, Caffein, Lead, and Tea reduce the excretion of Urea, and consequently lessen destructive metamorphosis of tissues. Potash Salts and Chlorides of Ammonium and Sodium increase the elimination of Urea.
6 **EXCESS OF URIC ACID.**	1020 (and higher).	Very Acid.	Diminished, or Normal.	High color, and clear.	Hydrochloric Acid, added to urine which has been standing a few hours, throws down a reddish sediment.	By adding Glacial Acetic Acid to the Urine, in a watch glass, and leaving some filaments of silk therein, Uric Acid crystals will be deposited in 24 or 48 hours.			Increased in Gout, Rheumatism, Pneumonia, Calcareous Diseases, Diseases of the Liver and some Inflammatory Fevers. In Gout and Rheumatism the increase is especially marked in the Blood.	Phosphate of Ammonia, Bicarbonate of Potash, and especially Citrate of Potash, and small doses of Mercury are recommended, and Hunyadi Janos, Freidrichshall, Carlsbad and Vichy as Mineral Waters. In Gout Colchicum, Citrate of Lithia, Tincture of Iodine (in m.x. doses), Iodide of Potassium, etc. Equal parts of Oil of Cajuput and Collodion as a paint; also Poppy and Soda fomentations.

*After drinking freely, about 1005 ("*Urina Potus*"); after food, about 1030 ('*Urina Chyli*"). †After vegetable diet, Alkaline Reaction; after animal food, Acid Reaction. Excretion *diminished* when skin acts freely; *increased* by Digitalis, Scoparius, Squill, Potash Salts, Cantharides, Turpentine, Calomel in small doses frequently repeated, Paraldehyde, etc §Color heightened by perspiration, and *vice versa*; Carbolic Acid darkens it; Santonin renders it orange; Beet-root reddens it. A *Red* Sediment indicates Uric Acid, if crystalline; otherwise Urate of Ammonia. A *White* Sediment indicates Phosphates, if soluble in heat; otherwise, Urate of Ammonia. A *Pink* Sediment indicates Urate of Soda and [illegible]osphate of Ammonia. Oxalic Acid is present both in health and disease, and is easily detected by the microscope. Its excess is best treated with Nitric or other mineral acids.

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